

REMARKS

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, tentatively rejected all examined claims 11, 12, 15, and 19-21. Specifically, claim 11 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Matsuda et al (US 4,596,994) in view of Andrews et al (US Pub. 2004/0085435). Applicant respectfully requests reconsideration and withdrawal of the rejection for at least the reasons discussed below.

Claim 11 recites:

11. An inkjet printhead comprising:
a substrate;
a heating layer disposed on the substrate to dispense liquid;
a conductive layer disposed on the substrate to conduct a current to the heating layer, wherein the conductive layer comprises a stepped portion used as a heating area, wherein the heating area is defined by the conductive layer and the heating layer;
a polymer disposed on the substrate;
a porous material disposed on the polymer; and
a chamber, formed by the polymer and porous material,
having a first side and a second side, wherein the first side is overlapped with the heating area, the second side is connected to the first side, and the chamber is formed with an exit, from which the liquid is dispensed, on the second side, and
the liquid flows into the chamber through the porous material.

(Emphasis added). Claim 11 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above.

As reflected above, claim 11 defines an inkjet printhead comprising a substrate, a heating layer, a conductive layer, a polymer, a porous material, and a chamber. The heating layer is disposed on the substrate to dispense liquid. The conductive layer is disposed on the substrate to conduct a current to the heating layer, and comprises a

stepped portion used as a heating area. The heating area is defined by the conductive layer and the heating layer. The polymer is disposed on the substrate. The porous material is disposed on the polymer. The chamber is formed by the polymer and the porous material, and has a first side and a second side. The first side is overlapped with the heating area, and the second side is connected to the first side. The chamber is formed with an exit, from which the liquid is dispensed, on the second side. The liquid flows into the chamber through the porous material.

The Office Action acknowledged that Matsuda et al does not disclose the claimed polymer disposed on the substrate; a porous material disposed on the polymer; and a chamber formed by the polymer and porous material, and the liquid flows into the chamber through the porous material (see, e.g., page 3 of Office Action).

Instead, in page 3 of Office Action, the Examiner also alleged that Andrews discloses the above characteristics at paragraphs 0051-0052. Applicant respectfully disagrees. In this regard, the examiner did not expressly point out that which element in Andrews is corresponded to the polymer of claim 11.

Paragraphs 0051-0051 actually state:

[0051] The open loop pleated filter 316 can be bonded to the ink inlet 125 of the print head 110 as laser ablated filter 114 in FIG. 4. The filter 316 can be bonded at the ends 310 and 312 and the edges of the pleats 328 to the walls and recesses of the channel plate 112. The bonding adhesive can be phenolic nitrile, epoxy, acrylic or other adhesives. Alternately, the filter can be bonded between upper and lower corrugated structures (not shown) of stamped or molded thermoplastics with two-sided adhesives. Also alternately, a conformal gasket such as a fluid seal can be used to seal the filter.

[0052] As shown in FIG. 8, fluid 330 will flow perpendicular to the open loop pleated filter 316. The fluid will flow through the pores 304 on the top surface 306 and out through the pores 304 on the bottom surface 308. Any particles in the fluid larger than the filter pores will be

trapped outside the pleated filter in the groove 324 with clean, particle-free fluid flowing downstream from the pleated filter.

As can be readily verified, this cited portion of Andrews does not teach the claimed features.

Moreover, in Andrews, thin film polymer layer 302 as shown in FIG. 7 is folded at the fold lines 314 by crimping or other mechanical means to form a pleated filter 316 (paragraph 46). That is, Andrews only relevantly discloses a filter 316 formed by a polymer layer 302 rather than a filter **and** a polymer layer. Thus, Andrews does not disclose a polymer and a porous material. For at least this reason, the rejection should be withdrawn.

Furthermore, since Andrews does not disclose a polymer and a porous material, it also does not disclose that the chamber is formed by the polymer and the porous material.

Neither Matsuda et al nor Andrews et al teach that the chamber is formed by the polymer and the porous material. Therefore, even if properly combined, the resulting combination does not teach all features of claim 11 and therefore does not render claim 11 unpatentable. For at least this reason, claim 11 patently defines over the cited art.

Claims 12 and 15 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Matsuda et al as modified by Andrews et al as applied to claim 11 above, and further in view of Park et al (US 6,702,428). Since Matsuda et al and Andrews et al do not disclose all the limitations of claim 11, claims 12 and 15 patently define over the cited art for at least the same reason.

Claim 19 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Matsuda et al in view of Andrews et al and Park et al. Applicant respectfully traverses the rejection made by the Examiner for the reasons discussed below.

19. An inkjet printhead comprising:
 - a substrate;
 - a heating layer disposed on the substrate to dispense liquid;
 - a conductive layer disposed to conduct a current to the heating layer, wherein the conductive layer comprises a stepped portion used as a heating area, wherein the heating area is defined by the conductive layer and the heating layer;
 - an adhesive layer disposed on the conductive layer;
 - a porous material, disposed on the substrate, including a chamber***, wherein the liquid flows to the chamber through the porous material, the chamber has a first side and a second side, the first side is overlapped with the heating area so that the liquid in the chamber is located above the heating area, and the second side is connected to the first side; and
 - a nozzle plate, disposed on the second side of the chamber, including at least one orifice.

(Emphasis added). Claim 19 patently defines over the cited art for at least the reason that the cited art fails to disclose the features emphasized above.

As reflected above, claim 19 defines an inkjet printhead comprising a substrate, a heating layer, a conductive layer, an adhesive layer, a porous material, and a nozzle plate. The heating layer is disposed on the substrate to dispense liquid. The conductive layer is disposed to conduct a current to the heating layer, and comprises a stepped portion used as a heating area. The heating area is defined by the conductive layer and the heating layer. The adhesive layer is disposed on the conductive layer. The porous material is disposed on the substrate, and includes a chamber. The liquid flows to the chamber through the porous material. The chamber has a first side and a second side. The first side is overlapped with the heating area so that the liquid in the chamber is located above the heating area, and the second side is connected to the first

side. The nozzle plate is disposed on the second side of the chamber, and includes at least one orifice. Significantly, claim 19 defines that the porous material includes a chamber, and the Office Action did not mention this feature as being taught in the prior art. For at least this reason, the rejection should be withdrawn.

Matsuda et al., Andrews et al. and Park et al. do not teach that the porous material includes a chamber. Thus, the prior references do not teach or suggest all the claim limitations. For at least this reason, claim 19 patently defines over the cited art.

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuda et al in view of Andrews et al and Park et al. Applicant respectfully traverses the rejections for the reasons discussed below.

Claim 20 recites an inkjet printhead comprising a substrate, a heating layer, a conductive layer, a metallic layer, a porous material, and a chamber. The heating layer is disposed on the substrate to dispense liquid. The conductive layer is disposed on the substrate to conduct a current to the heating layer, and comprises a stepped portion used as a heating area. The heating area is defined by the conductive layer and the heating layer. The metallic layer is disposed on the substrate. The porous material is disposed on the metallic layer. The chamber is formed by the metallic layer and the porous material, and has a first side and a second side. The first side is overlapped with the heating area. The second side is connected to the first side. The chamber is formed with an exit, from which the liquid is dispensed, on the second side. The liquid flows to the chamber through the porous material.

Like the rejection of claim 19, the Office Action did not mention the emphasized feature in the rejection. For at least this reason, the rejection should be withdrawn. Simply stated, Matsuda et al., Andrews et al. and Park et al. do not teach that the chamber is formed by the metallic layer and the porous material. Thus, the prior references do not teach or suggest all the claim limitations. For at least this reason, claim 20 patently defines over the cited art. Since Matsuda et al., Andrews et al. and Park et al. do not disclose all the limitations of claim 20, claim 21 patently defines over the cited art for at least the same reason.

As a separate and independent basis for the patentability of all claims, Applicant submits that the combination of Matsuda and Andrews is improper and therefore does not render the claims obvious. In this regard, the Office Action combined Andrews with Matsuda to reject the claims on the solely expressed basis that "it would have been obvious ... for the purpose of increasing fluid flow through a filter by increasing the surface area of the filter and removing particles in the fluid." (see e.g., Office Action, p. 4).

This rationale is both incomplete and improper in view of the established standards for rejections under 35 U.S.C. § 103.

In this regard, the MPEP section 2141 states:

The Supreme Court in KSR reaffirmed the familiar framework for determining obviousness as set forth in *Graham v. John Deere Co.* (383 U.S. 1, 148 USPQ 459 (1966))... As reiterated by the Supreme Court in KSR, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (A) Ascertaining the differences between the claimed invention and the prior art; and
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art.

In addition:

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention and
- (D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

As reflected above, the foregoing approach to obviousness determinations was recently confirmed by the United States Supreme Court decision in KSR INTERNATIONAL CO. V. TELEFLEX INC. ET AL. 550 U.S. 1, 82 USPQ2d 1385, 1395-97 (2007), where the Court stated:

In *Graham v. John Deere Co. of Kansas City*, 383 U. S. 1 (1966), the Court set out a framework for applying the statutory language of §103, language itself based on the logic of the earlier decision in *Hotchkiss v. Greenwood*, 11 How. 248 (1851), and its progeny. See 383 U. S., at 15-17. The analysis is objective:

“Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.” *Id.*, at 17-18.

Indeed, as now expressly embodied in MPEP 2143, “[t]he **key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious**. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.” (*Emphasis added, MPEP 2143*). “Objective evidence relevant to the issue of obviousness **must** be evaluated by Office personnel.” (MPEP 2141). “The key to supporting any rejection under 35 U.S.C. 103 is the **clear articulation of the reason(s) why the claimed invention would have been obvious**. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 **should be made explicit**. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that ‘[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.’” (MPEP 2141).

Simply stated, the Office Action has failed to at least (1) ascertain the differences between and prior art and the claims in issue; and (2) resolve the level of ordinary skill in the art. Furthermore, the alleged rationale for combining the references is merely an improper conclusory statement that embodies clear and improper hindsight rationale. For at least these additional reasons, Applicant submits that the rejections of all claims are improper and should be withdrawn.

For at least the foregoing reasons, all pending claims define over the cited art and the rejections should be withdrawn.

No fee is believed to be due in connection with this submission. If, however, any additional fee is deemed to be payable, you are hereby authorized to charge any such fee to Deposit Account No. 20-0778.

Respectfully submitted,

/Daniel R. McClure/
By: _____
Daniel R. McClure, Reg. No. 38,962

Thomas, Kayden, Horstemeyer & Risley, LLP
600 Galleria Pkwy, S.E.
Suite 1500
Atlanta, GA 30339
770-933-9500